Heraeus

PC 3001
Conductive Adhesive

Thermosetting Polymer Silver Conductive Adhesive

Description

PC 3001 is a thermosetting, one-component, solvent-free, silver-filled epoxy conductive adhesive, designed for the **connection of electronic (SMDs) and bare dies with LTCC- and ceramic substrates**, for dispensing application.

Advantages

- **High electrical and thermal conductivity.**
- **Very low degassing.**
- **Solvent-free, one-component.**
- **High reliability.**
- **Low ionic contamination.**

Typical Properties of the Uncured Adhesive

Property	Value
Ag Content	81,5 ± 1.5 %
Density	4.4 g/cm^3
Viscosity [1)]	9 ±3 Pa•s
Processing Life [2)]	c. 20 hours
Placing Time [3)]	c. 16 hours
Storage [4)]	6 months

1) At shear rate D= 50 s^{-1}. plate-cone system with cone 2°, temperature: 23 °C.
2) Time at room temperature during which the glue can be processed.
3) Max. time between paste application and component placement, at up to 60% R.H., at room temperature.
4) Storage in the freezer at - 40°C.

Processing

⇒ Dispensing.

⇒ Recommended Substrate Materials: LTCC and Al_2O_3 ceramic.

⇒ Ensure that the adhesive has reached room temperature.

Dispensing

⇒ Available syringes:
No. 1 (20g),
No. 2 (50g),
No. 3 (100g).

⇒ Depending on the application, the dot size and number of dots vary widely.

System	Nozzle diameter
Archimedes screw system e.g. CAM/ALOT	0.33 – 0.20 mm
Jetting system e.g. Asymtec Jet	0.20 – 0.12 mm
Air pressure / time system e.g. GLT	0.41 – 0.25 mm
Peristaltic system e.g. Höfer+Bechtel	0.25 – 0.15 mm

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Typical Properties of the Cured Adhesive PC 3001

Curing, Peak Temperature	10'/150°C 20'/120°C
Volume Resistivity	<0.3 mΩ•cm
Adhesion (DIN 1465)	>8.5 N/mm^2
Elongation at Tear (ISO 527-2)	>1%
E Module (ISO 527-2)	c. 3600 N/mm^2
Temperature Stability 1)	180°C
Glass Transition Temperature	41°C
Weight Loss during Curing Process at 140°C	< 1,2 %
Water absorption	< 0.19 %
Impurities: Cl^-	<20 ppm
Na^+	<10 ppm
K^+	<10 ppm
Thermal Conductivity	> 5 W/m•K
Shrinkage	4.4%
CTE below Tg	<65 ppm/K
above Tg	<140 ppm/K

1) After storage 1000 h at 180°C, the adhesion remains nearly unchanged.

The data stated above were measured at laboratories of W.C. Heraeus GmbH&Co.KG.

Cleaning

Before Curing**:**
The uncured adhesive can be removed with Zestron HC and other Zestron and Vigon cleaning materials - see separate application recommendations for cleaning of SMT-adhesives. The cleaned parts must be completely dry before installing them in the machine.

After Curing:
Defective components can easily be replaced by heating (with hot air) the cured adhesive joint above 250°C. The hot remaining adhesive can be removed with a sharp tool.

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The descriptions and engineering data shown here have been compiled by Heraeus using commonly-accepted procedures, in conjunction with modern testing equipment,and have been compiled as according to the latest factual knowledge in our possession. The information was up-to date on the date this document was printed (latest versionscan always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy, the results obtained from its use, or any patent infrresulting from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests todetermine materials suitability for a particular application.

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